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AGRICULTURE

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CIRCULATING COPY

1971 PERFORMANCE OF COMMERCIAL SOYBEANS IN ILLINOIS

(WITH 1970-1971 AVERAGES)

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**By J. E. Dillon, G. L. Ross,
and D. W. Graffis**

IN 1971, SOYBEAN YIELDS IN ILLINOIS are estimated to be 33.5 bushels per acre. This is 2.5 bushels higher than in 1970. A total production of 241 million bushels is anticipated. This is about 13 percent above the 1970 total.

High-profit soybean production begins with the selection of the best variety, brand, or blend of varieties available. This selection must have a high yield potential as well as good standability, proper maturity, and ease of combining. This circular can help you select the best variety, brand, or blend because it includes measurements of yield per acre, maturity, and lodging.

This information can serve as a starting point. Choose several entries that seem to best fit your needs. Plant them side by side, preferably in strips, next to your present variety. Then see how they compare. Look at standability, disease resistance, maturity, and yield. Each factor can affect your profits. The best variety for you is the one that produces the highest yield on *your* field.



Location of
1971 test fields.

PLAN OF THE TESTS

Selection of entries. For 1971, soybean producers in Illinois and surrounding states were invited to enter varieties, brands, or blends in the Illinois soybean performance trials. To finance the testing program, a fee of 30 dollars was charged for each entry entered by the seed producer. Most of these varieties, brands, or blends are commercially available, but producers also entered experimental varieties.

Entries. A total of 76 entries were tested in 1971. These are listed in Tables 1, 2, and 3.

Number and location of tests. Three separate tests were conducted in Illinois in 1971. These sites represent major soils and maturity zones of the state.

Field-plot design. The tests were set up in a randomized complete block design with four replications. There were three rows per plot in each test. The middle row of each plot was harvested to measure yield. Each plot was 30 feet long.

Fertility and weed control. All test locations were at a high level of fertility. Shown below are results of P_1 and K soil tests and applied fertilizer treatments for 1971.

	<i>pH</i>	<i>P₁ test</i>	<i>K test</i>	<i>Applied P₂O₅ (lb./acre)</i>	<i>Applied K₂O (lb./acre)</i>
DeKalb	6.7	55	300+	120	120
Urbana	7.1	45	288	226	226
Brownstown	7.2	70	339	60	80

A herbicide was used at all test locations to control weeds.

Method of planting and harvest. All plots were hand-planted and harvested to insure maximum precision. However, no allowances were made for beans that may have been lost in harvest.

MEASURING PERFORMANCE

Yield. Soybean yield (see Tables 1, 2, and 3) was measured in bushels (60 pounds) per acre at a moisture content of 12 percent. An electronic moisture tester was used for all moisture readings.

Lodging. The amount of lodging was rated shortly before harvest. The following scores were used to compare entries:

1. Almost all plants erect.
2. All plants leaning slightly or a few plants down.

3. All plants leaning moderately (45°), or 25 to 50 percent of the plants down.

4. All plants leaning considerably, or 50 to 80 percent of the plants down.

5. Almost all plants down.

Maturity. Maturity was stated as the date when approximately 95 percent of the pods were ripe.

Height. Height was measured at or shortly before harvest time. It is the average length of plants from the ground to the tip of the main stem.

Comparing entries. In any test of plant material, it is impossible to measure performance exactly. Samples may vary, soils may not be uniform, and many other conditions may produce variability. Results of repeated tests are more reliable than those of a single year or a single strip test. When one variety consistently outyields another at several test locations and over several years of testing, the chances are good that this difference is real and should be considered in selecting a variety. However, yield is not the only indicator. You should also consider maturity and lodging.

As an aid in comparing soybean varieties, brands, and blends, certain statistical tests have been devised. One test is Bayes L.S.D. When two entries in a trial are compared, and the difference between them is greater than the tabulated L.S.D. value, the entries are said to be "significantly different."

GROWING CONDITIONS ON 1971 TEST FIELDS

DeKalb. The DeKalb test was located on the University's Northern Illinois Research Center near Shabbona in DeKalb County. Richard Bell is the field manager and Derreld L. Mulvaney is the area agronomist in charge of research at the center. The soil type is Flanagan silt loam, a dark brown adequately drained soil of high fertility. The area was in corn in 1970. The 1971 growing conditions were about normal except for an unusually dry spring. Planting and harvesting were done on May 21 and October 18 respectively.

Urbana. This test was located on the Agronomy South Farm of the University of Illinois at Urbana-Champaign in Champaign County. M. G. Oldham is the farm manager. The field on which the test plots were grown was a level heavy-textured Drummer silty clay loam. This

area was in soybeans in 1970. Growing conditions were about normal except for an unusually dry spring. Planting was done on May 20. Harvesting was done on three separate dates, depending on the entries' maturity. These dates were September 15, September 24, and October 4.

Brownstown. This test was located on the University's Brownstown Research Center in Fayette County. A. T. Christiansen is the farm manager. The test plots were located on a Cisne silt loam, a poorly drained, gray prairie soil with a well-developed claypan. Natural fertility of this soil is not high, but good fertilization practices and crop rotations have brought the yield potential of the field up to a moderately high level. Growing conditions were abnormal in 1971. There was adequate rainfall in early spring but an extensive drouth prevailed during the summer. Planting and harvesting were done on May 27 and September 13 respectively.

SOURCES OF SEED

Bellatti Soybeans.....	Louis Bellatti.....	Mt. Pulaski
F.F.R. Soybeans.....	Farmers Forage Research Coop.....	Lafayette, Ind.
F-37-M.....	Funk Bros. Seed Co.....	Bloomington
I.V.R. Soybeans.....	Improved Variety Research, Inc.....	Adel, Iowa
Marshall.....	Improved Variety Research, Inc.....	Adel, Iowa
McKoy.....	Donald McKenzie.....	Malta
Certisoy Soybeans.....	Moews Seed Co.....	Granville
Morton Brand Soybeans.....	Roy A. Morton and Sons, Inc.....	Bowen
Peterson Soybeans.....	Peterson Seed Co.....	Waterloo, Iowa
Seedmaker Soybeans.....	Seed Makers, Inc.....	Princeville
S.R.F. Soybeans.....	Soybean Research Foundation, Inc....	Mason City
Super Soy Soybeans.....	Stewart Hybrids, Inc.....	Princeville
XK Soybeans.....	L. Teweles Seed Co.....	Clinton, Wisc.

Table 1. — DeKalb (Planted in 30-inch rows)

Entry	Total acre yield (bu.)	Matu- rity	Lodg- ing score	Height (in.)	2-year averages (1970-1971)		
					Total acre yield (bu.)	Lodg- ing score	Height (in.)
Peterson 2100 Brand.....	51.6	Sept. 26	1.5	40.0	....	...	....
Super Soy 440.....	51.6	Oct. 5	1.0	39.2	51.4	2.5	39.6
Certisoy 21.....	51.3	Oct. 5	1.0	39.2	....	...	....
Wayne.....	51.1	Oct. 8	2.0	42.5	....	...	....
Bellatti 4PA Exp.....	50.8	Oct. 10	4.0	41.0	....	...	....
Beeson.....	50.3	Oct. 3	1.0	39.5	50.5	2.5	39.2
Bellatti Exp. 26.....	50.1	Oct. 8	2.0	39.5	....	...	....
Peterson 105 R.....	50.1	Sept. 28	2.0	40.0	....	...	....
S.R.F. 307.....	50.1	Oct. 9	2.2	45.5	....	...	....
Super Soy 420.....	50.1	Oct. 6	1.5	43.0	....	...	....
Marshall.....	49.6	Oct. 4	2.2	37.5	50.2	3.2	37.2
XK-535.....	49.4	Oct. 6	1.8	40.5	....	...	....
I.V.R. 2119.....	49.1	Sept. 22	1.5	39.0	....	...	....
Corsoy.....	48.9	Sept. 24	2.2	41.5	50.0	3.5	40.2
Amsoy 71.....	47.4	Sept. 29	2.2	43.0	....	...	....
McKoy.....	46.7	Oct. 2	1.2	41.0	....	...	....
Seedmaker Exp. 16485....	46.7	Sept. 17	1.5	36.0	....	...	....
Hark.....	45.7	Sept. 16	1.0	35.5	44.6	3.0	35.4
XK-155.....	45.7	Oct. 5	2.8	42.0	....	...	....
Bellatti Exp. 22.....	45.2	Sept. 29	2.2	41.5	....	...	....
F.F.R. 955078.....	45.2	Sept. 29	1.5	42.0	....	...	....
Super Soy 400.....	45.0	Oct. 5	1.2	42.0	....	...	....
I.V.R. 2818.....	44.8	Oct. 2	1.0	37.5	....	...	....
XK-505.....	44.5	Sept. 27	1.0	41.5	....	...	....
S.R.F. 150.....	44.0	Sept. 12	1.0	33.5	....	...	....
Bellatti 10 Exp.....	43.3	^a	2.5	50.0	....	...	....
Seedmaker Exp. 16488....	42.8	Sept. 26	2.0	40.0	43.4	2.8	40.5
Bellatti B 19 Exp.....	42.6	^a	3.0	50.5	....	...	....
Bellatti X 9 Exp.....	42.6	^a	2.8	45.5	....	...	....
Av. of all entries.....	47.5	.....	1.8	41.0	....	...	....
Av. of 2-year entries....	....	.....	...	....	48.3	2.9	38.7
L.S.D.....	2.9	.....	.5	1.9	....	...	....
L.S.D. for 2-year entries	....	.....	...	....	2.0	.4	.8
C.V.....	4.7	.....	...	....	....	...	....

^a Frosted before maturity. Killing frost date in 1971 at the DeKalb test field was October 11.

Table 2. — Urbana (Planted in 30-inch rows)

Entry	Total acre yield (bu.)	Matu- rity	Lodg- ing score	Height (in.)	2-year averages (1970-1971)		
					Total acre yield (bu.)	Lodg- ing score	Height (in.)
Peterson 125.....	54.0	Sept. 29	3.0	44.5	....	...	....
XK-505.....	53.0	Sept. 11	3.0	43.5	....	...	....
Cutler.....	50.1	Sept. 29	2.2	47.5	....	...	....
Morton Brand 333B.....	49.6	Sept. 10	3.2	46.0	....	...	....
Certisoy 39.....	48.9	Sept. 23	3.0	44.5	....	...	....
I.V.R. 2818.....	48.9	Sept. 12	2.8	42.0	....	...	....
Amsoy 71.....	48.1	Sept. 10	3.2	45.0	....	...	....
Corsoy.....	47.9	Sept. 5	3.8	40.5	48.5	2.9	38.8
Wayne.....	47.9	Sept. 22	2.8	45.0	46.9	2.4	42.9
XK-585.....	47.2	Sept. 20	3.2	45.5	....	...	....
S.R.F. 307.....	47.0	Sept. 23	4.0	48.0	....	...	....
XK-590.....	47.0	Sept. 15	3.8	41.5	....	...	....
Morton Brand 333.....	46.7	Sept. 7	3.5	42.0	45.4	2.8	41.0
S.R.F. 150.....	46.0	Sept. 6	2.0	40.0	....	...	....
Peterson 120 CR.....	45.7	Sept. 22	3.2	43.5	....	...	....
S.R.F. 450.....	45.7	Sept. 30	1.8	46.5	....	...	....
F-37-M.....	45.5	Sept. 12	3.0	43.5	....	...	....
I.V.R. 2119.....	45.5	Sept. 10	2.2	42.5	....	...	....
Peterson 105R.....	45.0	Sept. 6	3.5	44.8	....	...	....
Super Soy 540.....	45.0	Sept. 22	3.0	47.0	....	...	....
Seedmaker I-E.....	44.8	Sept. 19	2.5	48.5	....	...	....
S.R.F. 400.....	44.8	Sept. 29	4.0	48.0	....	...	....
Marshall.....	44.5	Sept. 15	3.5	43.5	46.7	3.9	40.4
XK-565.....	44.5	Sept. 21	4.8	41.5	....	...	....
F.F.R. 955342.....	44.3	Sept. 15	3.8	45.5	....	...	....
Bellatti Exp. 22.....	42.8	Sept. 9	3.5	44.0	....	...	....
Bellatti Exp. 26.....	40.7	Sept. 18	4.2	42.0	....	...	....
Seedmaker Exp. 26339.....	39.4	Sept. 12	3.2	42.5	....	...	....
Bellatti L263A Exp.....	38.7	Sept. 29	3.0	47.0	38.2	2.9	43.9
XK-535.....	36.8	Sept. 13	3.8	44.0	....	...	....
Bellatti Sc. 7 Exp.....	32.9	Oct. 2	3.8	50.5	....	...	....
Av. of all entries.....	45.4	.....	3.2	44.7	....	...	....
Av. of 2-year entries.....	....	.....	...	....	45.2	3.0	42.9
L.S.D.....	4.1	.....	.7	2.3	....	...	....
L.S.D. for 2-year entries.....	....	.....	...	....	2.3	.4	1.6
C.V.....	6.8	.....	...	....	....	...	....

Table 3. — Brownstown (Planted in 30-inch rows)

Entry	Total acre yield (bu.)	Matu- rity	Lodg- ing score	Height (in.)	2-year averages (1970-1971)		
					Total acre yield (bu.)	Lodg- ing score	Height (in.)
Amsoy 71.....	30.2	Aug. 24	1.0	37.5	....	...	....
Seedmaker I-E.....	29.0	Sept. 6	1.0	38.0	....	...	....
S.R.F. 307.....	27.3	Sept. 5	1.0	37.5	....	...	....
Beeson.....	26.4	Aug. 20	1.0	33.5	19.1	1.0	31.0
S.R.F. 450.....	26.4	Sept. 12	1.0	34.8	....	...	....
Wayne.....	26.1	Sept. 6	1.0	36.8	19.3	1.0	33.1
Seedmaker Exp. 46811....	24.9	Sept. 1	1.0	37.0	....	...	....
Calland.....	24.7	Sept. 6	1.0	37.0	21.0	1.0	33.8
S.R.F. 400.....	23.7	Sept. 7	1.0	36.0	....	...	....
Bellatti L263.....	21.8	Sept. 10	1.0	34.5	16.8	1.0	30.8
Cutler.....	21.3	Sept. 12	1.0	36.0	18.1	1.0	32.0
Bellatti Sc. 7 Exp.....	21.0	Sept. 13	1.0	39.5	....	...	....
Morton Brand 444.....	20.8	Sept. 9	1.0	37.0	17.4	1.0	33.5
Seedmaker Exp. 46483....	20.8	Sept. 13	1.0	45.5	....	...	....
Bellatti L263A Exp.....	17.9	Sept. 12	1.0	33.5	14.7	1.0	30.2
Av. of all entries.....	24.2	.....	1.0	36.9	....	...	....
Av. of 2-year entries....	....	.....	...	....	18.0	1.0	32.0
L.S.D.....	1.8	.....	N.S.	2.0	....	...	....
L.S.D. for 2-year entries	....	.....	...	....	1.4	N.S.	1.4
C.V.....	6.0	.....	...	....	....	...	....

This circular was prepared by J. E. Dillon, Associate Agronomist, G. L. Ross, Assistant Agronomist, and D. W. Graffis, Professor of Forage Crops Extension.

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